



**UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/747,004 12/21/00 HU

J 3366.1

HM22/0924

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EXAMINER

SIEW, J

ART UNIT

PAPER NUMBER

1656

DATE MAILED:

09/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/747,004

Applicant(s)

HU ET AL.

Examiner

Jeffrey Siew

Art Unit

1656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

- A) References to attorney docket numbers is improper and require deletion.
- B) Applicant is reminded that the current status of all US applications referenced in application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-16, 18 & 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al (US4,868,105 Sept. 19, 1989) in view of Lockhart et al (6,040,138 March 21, 2000).

Urdea et al teach the detection of target nucleic acid using two sets of probes on a support. (see whole doc. esp. abstract). One is bound to support and contains a region that binds to a recognition region of the second probe. The second probe contains a region that binds to target nucleic acid (see col. 1 lines 41-61 and Figure 1A). They teach the subset regions will have at least 15 or at least 25 nucleotides. (see col. 2 line 56-60). They teach that labels may be fluorescers (see col. 3 line 39 and detected by pandex screen machine (see 13 line 54). They teach that analyte samples may be any nucleic acids from biological fluids (see col. 4 line 1-2).

Urdea et al do not explicitly teach detection by hybridization pattern.

Lockhart et al teach expression monitoring on high density array with bound oligonucleotide arrays in which more than 100 different oligonucleotides may be bound (see whole doc. esp. abstract). They teach a density of greater than 1000 oligonucleotides per cm² (see col. 3 line 15). They teach light directed polymer synthesis for constructing immobilized oligonucleotides (see col. 3 line 47). They also teach detection with fluorescence microscope to detect patterns (see col. 2 line 28 & col. 3 line 67). They teach detecting from mRNA or cDNA from biological samples (see col. 4 lines 8-12).

One of ordinary skill would have been motivated to combine Urdea et al's probe sets to Lockhart et al's array in order to detect a multiplicity of genes. Urdea et al state that their method provides the advantages of increased signal to noise (see col. 1 line 27). It would have been prima facie obvious to apply Lockhart et al's array to Urdea et al's probes in order to provide a high throughput analysis of multiple genes with high signal to noise ratio.

Art Unit: 1656

2. Claims 17 & 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Urdea et al (US4,868,105 Sept. 19, 1989) in view of Lockhart et al (6,040,138 March 21, 2000) in further view of .

The teachings of Lockhart et al and Urdea et al are described previously.

Urdea et al do not teach 5-3 or 3-5 synthesis.

Teach 5-3 or 3-5 synthesis (see col.5 line 62-62 & col. 10 line 11 -20).

One of ordinary skill in the art would have motivated to apply synthesis in order to construct oligonucleotides in the direction that would bind to urdea second probes. It was well known and commonly practiced in the art to synthesize the oligonucleotides in either direction, it would have been prima facie obvious to apply the synthesis of Vinayak et al in order to create oligonucleotides that would optimally hybridize in the direction of the complementary target.

SUMMARY

3. No claims allowed.

CONCLUSION

Art Unit: 1656

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Siew whose telephone number is (703) 305-3886 and whose e-mail address is Jeffrey.Siew@uspto.gov. However, the office cannot guarantee security through the e-mail system nor should official papers be transmitted through this route. The examiner is on flex-time schedule and can best be reached on weekdays from 6:30 a.m. to 3 p.m. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703)-308-1152.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist for Technology Center 1600 whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Center numbers for Group 1600 are Voice (703) 308-3290 and Fax (703) 308-4556 or (703) 308-4242.


Jeffrey Siew

September 23, 2001